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450110-03709**REMARKS/ARGUMENTS**

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the amendments and remarks herewith, which place the application into condition for allowance. The present amendment is being made to facilitate prosecution of the application.

**I. STATUS OF THE CLAIMS AND FORMAL MATTERS**

Claims 1 -7, 9-16, 18-24 and 26-76 are pending in this application. Claims 1, 10, 19, 27-33, 43, 60, 63, 64, 65 and 70-76 are independent. Claims 1, 10, 18-24, 26-36, 39, 42-66 and 68-76 are hereby amended. Claims 8, 17, and 25 are canceled without prejudice or disclaimer of subject matter. It is submitted that these claims, as originally presented, were in full compliance with the requirements 35 U.S.C. §112. No new matter has been introduced by this amendment. Support for this amendment is provided throughout the Specification. Changes to claims are not made for the purpose of patentability within the meaning of 35 U.S.C. §101, §102, §103, or §112. Rather, these changes are made simply for clarification and to round out the scope of protection to which the Applicants are entitled.

The claims were objected to because the numbering was not in accordance with 37 CFR §1.126. Claims 19-77 have been renumbered 18-76, thereby obviating the objection.

Claims 1, 43-54, 58, 59, 64, and 75 were objected to due to informalities. These claims have been amended, obviating the objection.

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450110-03709**II. REJECTIONS UNDER 35 U.S.C. §112**

Claim 61 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Claim 61 has been amended, obviating the rejection.

**III. REJECTIONS UNDER 35 U.S.C. §102(e)**

Claims 1-4, 9-13, 18-21, 26, 28-30, 37-45, 48-50, 54, 56, 60-72, 75, and 76 were rejected under 35 U.S.C. §102(e) as allegedly anticipated by U.S. Patent No. 6,590,996 to Reed, et al.

**IV. REJECTIONS UNDER 35 U.S.C. §103(a)**

Claims 5, 6, 14, 15, 22, 23, and 57 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent No. 6,590,996 to Reed, et al. in view of "Tools and Techniques for Globally Unique Content Identification" to James H. Wilkenson and Michael E. Cox.

Claims 7, 16, 24, 33, 34, and 36 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent No. 6,590,996 to Reed, et al. in view of U.S. Patent No. 6,671,387 to Chen, et al.

Claims 8, 17, 25, 27, 31, 32, 73, and 74 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent No. 6,590,996 to Reed, et al. in view of U.S. Publication No. 2002/0154699 to Yamaguchi, et al.

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450110-03709**V. RESPONSE TO REJECTIONS**

Claim 1, amended to include the limitations of previous claim 8, recites *inter alia*:

“...a control processor operable to receive data indicative of said relative importance of said data items to be embedded and to control said encoding processor and said combining processor to encode and embed said data items in accordance with relative importance,

wherein said combining processor is operable in combination with said encoding processor...

to embed control information in the information material indicative of at least one of the encoding and embedding applied to said data items.”  
(emphasis added)

As understood by Applicants, U.S. Patent No. 6,590,996 to Reed, et al.

(hereinafter, merely “Reed”) relates to color adaptive watermarking. A color mapping process enhances a watermark by computing a change in colors that is less visible for a given watermark strength.

As understood by Applicants, U.S. Publication No. 2002/0154699 to Yamaguchi, et al. (hereinafter, merely “Yamaguchi”) relates to picture and sound decoding system capable of controlling the quantity of coding depending on the processing situation at the terminal when decoding or synthesizing plural pictures and sounds simultaneously, and capable of controlling decoding, synthesizing, and displaying a plurality of pictures and sounds depending on the accounting situation.

Claim 1 as indicated above has been amended to combine the features of claim 8 with that of claim 1. The Office Action rejected claim 8 on the ground of obviousness with respect to Yamaguchi. However, Applicants submit that Yamaguchi provides no disclosure of an

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arrangement for embedding control information in the information material indicative of at least one of the encoding and embedding applied to the data items.

Furthermore, Applicants submit that Reed provides no disclosure of the control processor receiving data indicative of a relative importance of the data items to be embedded and to control the encoding and combining processor to encode the embedded data items in accordance with the relative importance. Reed merely states in column 15 between lines 55 and 63 that a greater signal strength is applied to the known bits in the scheme because these are used by the reader to verify that it has found the watermark. Thus, there is no concept of different data items of payload data being given a relative importance and for the encoding to be performed to the effect that a different amount of redundancy is applied to the payload data in accordance with the relative importance. These features are not disclosed in Reed nor in Yamaguchi.

Yamaguchi does not relate to watermarking material and furthermore, there does not appear to be any disclosure in the passages in Yamaguchi cited by the Office Action of providing the control information which is embedded in the material to indicate how to detect and decode items of payload data embedded in the material. It is noted that the priority providing unit (101) determines the priority of processing of coded prime at the time of overloading and the picture coding unit (102) codes the picture and the transmission unit (107) transmits or records the coded information provided with the priority. Thus, there is no disclosure of any control information being embedded with the picture.

Furthermore, as indicated above this does not relate to any aspect of watermark encoding. It is therefore submitted that the skilled person would not review Yamaguchi to combine it with the subject matter of Reed and furthermore could not combine Yamaguchi with

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Reed to arrive at the subject matter of claim 1. It is not possible to read the passages cited in Yamaguchi on to the claim features associated with embedding the control information.

Therefore, Applicants submit that claim 1 is patentable. For similar reasons, independent claims 10, 19, 27 and 28 to 32 and 70 to 76 are also patentable.

Claim 33, recites *inter alia*:

“...a control processor operable to select said data items in accordance with an order of relative importance and to control said combining processor to embed said selected data items in said information material within said limited data embedding capacity, said control processor selecting said data items to the effect that more important data items are embedded before less important data items until said data embedding capacity limit is reached.”

As understood by Applicants, U.S. Patent No. 6,671,387 to Chen, et al. (hereinafter merely “Chen”) relates to a watermarking method and device to embed a digitized watermark into a digital image file in the spatial domain that first performs error correction to enhance the robustness of the digital image.

Claim 33 is directed to an arrangement in which the combining processor is controlled by a control processor to select data items in accordance with the order of their relative importance and to control the combining processor to embed the selected data items in the information material within a limited data embedding capacity. The control processor selects the data items to the effect that more important data items are embedded before less important data items until the data embedding capacity is limited. The Office Action asserts that while Reed discloses encoding data items in accordance with a relative importance, Chen discloses a capacity limit up to which data items may be encoded and embedded within the information material. However,

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Chen merely discloses an arrangement of identifying whether a particular area of an image can include a watermark or not and determine a threshold and a matrix pattern with respect to which it can be determined that a watermark code word can be combined with the image or not. Thus, there is no disclosure of embedding data items in accordance with a relative importance up to a capacity limit wherein more important data items are embedded before the less important data items until the capacity limit is reached. There is no mention of a relative capacity limit in Reed. Therefore, the skilled person could not combine Reed with Chen in order to arrive at the invention according to claim 33.

The Office Action argues that Chen creates a matrix of watermark eligible image pixels and therefore when these pixels are all watermarked the embedding process is terminated. However, Chen identifies that a capacity of each pixel is applied to a threshold to determine whether those pixels with a greater capacity than the threshold can be used or not to carry a watermark. Clearly, therefore with Chen there are some pixels below the threshold which have an embedding capacity but are not used, presumably because there is no guarantee of accurate retrieval of the data bits. There are also some pixels with capacity values above the threshold which do not fall in the category of having the greatest capacity values and therefore are not used. Accordingly, there is no concept of embedding data items until the capacity limit is reached. Claim 33 is therefore patentable.

Claim 43, now recites, *inter alia*:

“An apparatus for detecting and recovering data embedded in information material, said data comprising a plurality of source data items each having been encoded in accordance with a systematic error correction code to produce encoded data items each comprising the corresponding source data item and redundant data...” (emphasis added)

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Applicants submit that the term "systematic error correction code" is a term of art which is well known and specifically requires that the original un-encoded bits appear with the redundant bits in the code word after those original payload bits have been encoded.

Furthermore, the passages cited from Reed in columns 31 to 32 as well as Figures 19 and 20, do not appear to show any reference to a comparison of source data items with other source data items which have been successfully decoded. The recovery processor of claim 43 estimates the source data item which has been considered to be erroneous depending upon a corresponding value of at least one of the other recovered data items. The reason that the recovery data processor can attempt to determine the source data item, even though this has not been decoded, is that, as explained above, a systematic error correction code has been used and therefore a predetermined section of the encoded word contains the original source data bits. Thus, the recovery processor has a greater likelihood of correctly recovering and estimating the source data item with respect to the relative values of other source data items which have been successfully decoded. Reed does not disclose any such arrangement and furthermore merely discloses determining whether a read has been validly made presumably in dependence upon whether a message has been correctly error correction decoded.

Therefore, claim 43 is believed to be patentable. For similar reasons, claims 60, 63, 64, 65, 66, 75 and 76 are also believed to be patentable.

## VI. DEPENDENT CLAIMS

The other claims in this application are each dependent from one of the independent claims discussed above and are therefore believed patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the

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invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

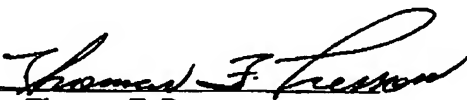
### CONCLUSION

In the event the Examiner disagrees with any of statements appearing above with respect to the disclosure in the cited references, it is respectfully requested that the Examiner specifically indicate those portions of the reference, or references, providing the basis for a contrary view.

Please charge any additional fees that may be needed, and credit any overpayment, to our Deposit Account No. 50-0320.

In view of the foregoing amendments and remarks, it is believed that all of the claims in this application are patentable and Applicants respectfully request early passage to issue of the present application.

Respectfully submitted,  
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